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PROTECTION OF DRINKING WATER SUPPLIES IN HUNGARY

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FOREWORD

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PROTECTION OF PUBLIC DRINKING-WATER SUPPLIES IN HUNGARY

[Following is the translation of an article by Dr. Gyula Vilmon, Undersecretary of Health, and Imre Degen, Director of the Water Management Bureau, in Vizugyi Ertesito (Water Management Bulletin) Vol VIII, No 8, Budapest, 14 April 61, pages 60-64.]

Section 1

General Administration

(1) A protective zone or area must surround drinking-water wells, advance headings, water-drawing places on the surface, reservoirs, and the main and branch water-pipes.

(2) The protective area is divided into inner, outer, and hydrogeological zones.

(3) The inner zone protects against direct, the outer zone protects against indirect, and the hydrogeological zone protects against distant contamination or possible contamination.

(4) The area should protect water, its carriers, and its containers against possible contamination.

Section 2

The Inner Zone

(1) Specifications of inner zones:

a) The inner zone of a well or a stream which is close to the surface is a circle having a diameter of 100 m.

b) A bored well or stream which draws its water from protected water-giving layer has a 20 m diameter circle as an inner zone.

c) If a stream or well of category b) has water seeping in from other sources in the soil, the inner zone will be 100 m in diameter.

d) A group of wells should possibly have an inner zone which conforms to specifications a) through c) and should have the shape of a parallelogram.

4) An advance heading must have a 50 m wide protecting strip on every side.

f) A well with feelers must have an inner protective area which is measured 50 m from the outer ends of the feelers.

g) Riverbed wells must have a protective circle 20 m in diameter.

h) A reservoir, if the whole area of the reservoir must be protected, must have a 20 m wide zone, measured from the bank. If only the water-drawing spot is protected, it must have a protective circle 100 m in diameter.

i) Inner protective zones of springs and sumps located in mines extend in a 20 m long path in the pit from the spring or sump.

j) Water towers have a 20 m diameter protective circle, or 10 m, if measured from the foot of the slope on which the tower is located.

k) Water-treating buildings are surrounded by a 10 m wide zone (if the treatment is done in a closed building), or a 20 m wide zone (if the treatment is done in an open reservoir).

(2) Water-towers of special kinds, closed-system water-lifting plants, and pressure intensifiers need not be provided with inner protective zones.

Section 3

Fencing of the Inner Zone

(1) Inner protective zones must be fenced with a 2 m high barbed wire or thorny hedge fence (in outlying areas), or with a 2 m high closed fence (in inhabited areas).

(2) The height of the fence can be modified by landscaping considerations.

(3) The path leading to springs and sumps in mines must be closed off by an iron door with a metal-screen ventilating opening.

Section 4

Objects in and Entrance into the Inner Zone

(1) Only objects pertaining to water treatment can be stored in the inner zone.

(2) Only those who work, live, or supervise work in the inner zone can enter here. Those inner zones where there is a possibility of contact with water can be entered only with disinfected footwear.

(3) Homes inside inner zones having no plumbing must be gradually evacuated and demolished.

(4) The manager of the water plant is responsible that those who enter the inner zone should not contaminate it.

Section 5

Health Control

(1) Those workers who work in the inner zone and those inhabitants who live in the inner zone must undergo a yearly health examination.

(2) Such people must have an individual health card, which will be kept by the employer. The employer is responsible for the worker's appearance at the examinations. The result of the examination and the date of the next examination must appear on the card.

(3) When the workers or the inhabitants of the inner zone report an infectious disease among themselves, their treatment should be immediate.

Section 6

Planting and Care of Trees

(1) Only walnut, apricot, pear, and perhaps other small-rooted trees can be planted in the inner zone. Agricultural plants (among the trees) are forbidden.

(2) The trees cannot be cared for by persons who otherwise have no authority to be in the inner zone. Fertilization and spraying of the trees with arsenic-, mercury-, and nicotine-containing materials is forbidden.

Section 7

The Outer Zone

(1) The border of the outer zone:

- a) of objects mentioned in Section 2, (1),
a) is a circle 200 m in diameter.
- b) of objects mentioned in Section 2, (1),
d) is a 100 m wide strip
- c) of objects mentioned in Section 2, (1),
c) is a circle 200 m in diameter.
- d) of objects mentioned in section 2, (1),
e) is a 100 m wide strip
- e) of objects mentioned in section 2, (1),
f) is a 100 m wide strip
- f) of objects mentioned in Section 2, (1),
g) is a 100 m wide strip
- g) of objects mentioned in Section 2, (1),
i) is a circle 20 m in diameter downward.

the upper border of the next water-impregnable layer upward, and a circle 100 m in diameter horizontally.

(2) Objects mentioned in Section 2, (1) b), h), j), and k) need not have outer protecting zones.

Section 8

Signs in the Outer Zone: Building and Other
Limitations

(1) The border of the outer protecting zone must have conspicuous warning billboards.

(2) Only the maintainer of the water plant can build in the outer zone.

(3) Pumping networks connected to the water-drawing spot should possibly be in the outer zone. Workshops and storerooms belonging to the water plant as well as the service homes of the workers of the water plant should be built only in the outer zone.

(4) Existing roads leading through the outer zone must be maintained so that their water-carrying ditches carry their water outside the zone.

(5) Dumping of rubbish is forbidden in the outer zone.

(6) If a sewage conduit has to go through the outer zone, it must be water-impermeable. It must be made of iron-concrete pressing tubing, steel tubing, cast iron tubing, asbestos-cement tubing, or ceramic tubing (the latter surrounded by at least 10 cm thick concrete). Pressure tests pertaining to the water-impermeability of the tube must be conducted before the installation. The test must be repeated every two years.

(7) The outer zone can have trees and can be planted. Organic fertilization and animal grazing is, however, forbidden. These orders must be enforced by the manager of the water plant.

(8) Dogs, cats, and poultry, if they are regularly checked by veterinarians, can be kept in the outer zone. Their habitats must be based on a concrete sheet which can be kept clean constantly, and must not be less than 50 m from the border of the inner zone.

(9) Floating establishments, (such as seasonal piers) or swimming pools in the outer zone can only be maintained by permission.

Section 9

Conduits for Rain, Slack, and Sewage Water

(1) Rain, slack, and sewage water must be conducted from the outer zone according to regulations.

(2) There must be no object in the neighborhood of the outer zone that would obstruct the free passage of waters from the zone.

(3) No water can be emptied into a river within 5 km (1.5 km, in the case of the Danube) upstream of a water-drawing spot. If this regulation cannot be met, special permission must be obtained from authorities to enter water into the river within the above limits.

(4) Dumping on the banks of the river cannot be allowed within the above limits. Animals cannot bathe in or drink from the river within the above limits.

Section 10

Health Control

(1) Inhabitants and workers of the outer zone are subjected to the same health regulations as those of the inner zone.

(2) Elements in the outer zone leading to the detriment of the water must be corrected by the manager of the water plant.

(3) Free passage of workers to and from the outer zone must be granted by the owners of the surrounding properties.

Section 11

Removal of Garbage and sewage from the Protection Zones

(1) Sewage accumulated in the protecting zones must be removed according to the following rules.

a) Sewage from the wc must be carried out through tubes described in section 8, (6) into a public sewage system outside the protecting zones.

b) Outhouses must be furnished with an iron tank which lies on a removable concrete sheet. The tank has to be emptied according to public health regulations.

c) Kitchen and bathing waters can be evaporated only outside the protecting zones.

d) Home garbage must be collected in a water-impermeable and easily cleanable container. It can be emptied outside the zones.

Section 12

Hydrogeological Protecting Zone

(1) The border of the zone must be determined with respect to the water-collecting area and its hydrogeological properties.

(2) Within this zone there must be no such establishment built that might contaminate the water-drawing spot. Lumbering, mining, and other activities that could possibly jeopardize the purity and naturalness of the water are prohibited in the zone. Any establishment in the zone can be built only with permission.

(3) Sewage-disposal and management of garbage in the hydrogeological zone is to be regulated by the law regarding the protecting area.

Section 13

Protecting Zone

(1) A protecting zone must accompany the building or reconstruction of a public water-network. The protecting zone extends 1 m below the pipe, at least 2 m on each side of the pipe. The upper border of the protecting zone is the earth's surface.

(2) The width of the protecting zone, if the water and sewage pipes go parallel, is 1 m on each side of the tubes, provided the sewage pipe is above the water pipe. If the water pipe is above the sewage pipe and the water pipe is in or very near subsoil water, the protecting strip is to be 1 m on both sides of the water pipe. If the axis distance of the two pipes is less than 2 m, the sewage pipe must be buttressed. If the water pipe is in dry soil, the protecting strip should be 50 cm on each side. In special cases where there is extraordinary difficulty in forming a protecting strip, these distances can be reviewed. However, in such cases the affected pipe-section must be made of water-impermeable materials (see materials in Section 8, (6)).

(3) When sewage and water pipes cross and the sewage pipe lies higher, the stability of the sewage pipe must be secured on a 2 m section before and after the meeting point. The water pipe must be put through a protecting tube which is equipped with an observation pit on one end. If the water pipe is in a higher position and the difference in height is less than 50 cm, the water pipe must be built in one piece 2 m from the meeting point on each side of the pipe. The sewage must be covered with a cement layer

of at least 10 cm thick for 1 m on each side from the meeting point. If the difference in height between the two pipes is between 0.5 - 1 m only the sewage has to be protected according to the rules of the previous sentence.

(4) No object or material that can be detrimental to the pipe can be within the protecting strip. Old pipes used in the old network also must be carried out of the protective zone. On the surface, sewage water cannot pass over the protecting zone into a ditch. If this cannot be avoided, the open ditch must be covered water-impermeably on a 2 m section on each side of the meeting point with the water pipe.

Section 14

Regulating Rules

(1) Appointment of the protecting zones is done by the Water Management Bureau.

(2) The petition to assign a protecting zone must be accompanied by a 1:2000 (or a 1:2880) and a 1:25000 (or 1:50000) blueprint, which must show clearly the general plan of the establishment desired, its technical description and how it will work, data on the origin of the water, water analysis data, hydrogeological description of the environs, the suggested borders of the protecting zones, and the hydrogeological and health characterization of those borders by authorities.

(3) Inspection of the area must proceed assignment of the protective zones. The inspection committee consists of representatives of the National Public Health Institute, the Hungarian National Geological Institute, the local public health and epidemic station, the district mine bureau, and the county council.

(4) In assigning the protecting zones, the laws 2/1952 (I. 8.) M. T., and 1957 IV, have to be observed.

(5) The Water Management Bureau will consider the opinions of the above representatives before deciding on the protective zones.

(6) The Bureau's decisions can be appealed.

Section 15

Various Regulations

(1) Property changes occurring with the appointment of protecting zones must be noted in the Property Register, according to law 2/1952 (I. 8.) M. T., Section 28. (5), and Section 29.

(2) Factors deleterious to public health and not requiring technical changes are to be dealt with according to law 173/1951 (IX. 16.) M. T.

(3) The Water Management Bureau can appoint different protective zones than those given in sections 2 and 4 if it is so suggested by the experts in section 14, (3).

Section 16

Validity

This law will become active on the first of April 1961.
At the same time, law 153/1955 (Eu. K. 16) Eu. M. becomes void.